LISTING OF CLAIMS

This listing of claims replaces all prior versions and listings of claims in this application.

Claim 1 (Withdrawn): A method of preparing cellulose ethers comprising the steps of:

(a) obtaining mercerized and recovered cellulose pulp; and

(b) converting the mercerized and recovered cellulose pulp into the cellulose ethers,

wherein the mercerized cellulose pulp in step (a) was mercerized with a cellulose II mercerizing agent, the cellulose pulp is southern softwood kraft, the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity of at most 12 cP, and when the cellulose ether prepared is hydroxyethyl cellulose, the mercerized and recovered cellulose pulp has at least one of the following properties:

(i) a TAPPI 230 om-89 viscosity less than 10.4 cP or greater than 11.2 cP,

(ii) a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 2.3%,

(iii) a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 1.3%,

(iv) not been prehydrolyzed, or

(v) not been bleached with elemental chlorine.

Claim 2 (Withdrawn): The method of claim 1, wherein the cellulose ether prepared is hydroxyethyl cellulose and the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity less than 9.25 cP.

Claim 3 (Withdrawn): The method of claim 2, wherein the cellulose ether prepared is hydroxyethyl cellulose and the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity less than 8 cP.

Claim 4 (Withdrawn): The method of claim 1, wherein the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity less than 9.25 cP.

Claim 5 (Withdrawn): The method of claim 4, wherein the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity less than 8 cP.

Claim 6 (Withdrawn): The method of claim 1, wherein the mercerized and recovered cellulose pulp has a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 3.0%.

Claim 7 (Withdrawn): The method of claim 6, wherein the mercerized and recovered cellulose pulp has a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 5.0%.

Claim 8 (Withdrawn): The method of claim 1, wherein the mercerized and recovered cellulose pulp has a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 2.0%.

Claim 9 (Withdrawn): The method of claim 8, wherein the mercerized and recovered cellulose pulp has a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 4.0%.

Claim 10 (Withdrawn): The method of claim 1, wherein the cellulose pulp is not regenerated cellulose pulp.

Claim 11 (Withdrawn): The method of claim 1, wherein the mercerized and recovered cellulose pulp is a cellulose floc.

Claim 12 (Withdrawn): The method of claim 1, wherein step (a) comprises:

(i) mercerizing cellulose pulp; and

(ii) washing, neutralizing, or neutralizing and washing the mercerized cellulose pulp.

Claim 13 (Withdrawn): The method of claim 12, wherein the cellulose pulp in step (a)(i) is mercerized with an aqueous solution containing from about 9 to about 24% by weight of sodium hydroxide, based upon 100% weight of total aqueous solution.

Claim 14 (Withdrawn): The method of claim 13, wherein the cellulose pulp in step (a)(i) is mercerized with an aqueous solution containing from about 13 to about 24% by weight of sodium hydroxide, based upon 100% weight of total aqueous solution.

Claim 15 (Withdrawn): The method of claim 1, wherein step (a) comprises:

(i) mercerizing cellulose pulp; and

(ii) washing the mercerized cellulose pulp.

Claim 16 (Withdrawn): The method of claim 12, wherein the mercerized cellulose pulp in step (a)(ii) is washed with an aqueous solution.

Claim 17 (Withdrawn): The method of claim 16, wherein the washing step is continued until the residual water has a pH of less than about 10.

Claim 18 (Withdrawn): The method of claim 16, wherein step (a) further comprises (iii) drying the mercerized and washed, neutralized, or washed and neutralized cellulose pulp.

Claim 19 (Withdrawn): The method of claim 18, wherein the mercerized and dried cellulose pulp contains less than about 20% by weight of moisture content, based upon 100% weight of total cellulose pulp and water.

Claim 20 (Withdrawn): The method of claim 1, wherein step (a) comprises:

(i) treating cellulose pulp to form a cellulose floc;

(ii) mercerizing the cellulose floc; and

(iii) washing, neutralizing, or neutralizing and washing the mercerized cellulose floc.

Claim 21 (Withdrawn): The method of claim 1, wherein the mercerized and recovered cellulose pulp is substantially free of cellulose III.

Claim 22 (Withdrawn): The method of claim 1, wherein the mercerized and recovered cellulose pulp contains less than about 3.5% by weight of mercerizing agent, based upon 100% by weight of cellulose pulp and mercerizing agent

Claim 23 (Withdrawn): The method of claim 22, wherein the mercerized and recovered cellulose pulp contains less than about 0.3% by weight of mercerizing agent, based upon 100% total weight of cellulose pulp and mercerizing agent.

Claim 24 (Withdrawn): The method of claim 23, wherein the mercerized and recovered cellulose pulp contains less than about 0.03% by weight of mercerizing agent, based upon 100% total weight of cellulose pulp and mercerizing agent.

Claim 25 (Withdrawn): The method of claim 1, wherein the mercerized and recovered cellulose pulp has an Rx value of greater than 0.57.

Claim 26 (Withdrawn): The method of claim 25, wherein the mercerized and recovered cellulose pulp has an Rx value of greater than 0.60.

Claim 27 (Withdrawn): The method of claim 26, wherein the mercerized and recovered cellulose pulp has an Rx value of greater than 0.64.

Claim 28 (Withdrawn): The method of claim 1, wherein the mercerized and recovered cellulose pulp has at least about 20% by weight of cellulose II, based upon 100% total weight of the crystalline portion of the mercerized cellulose pulp.

Claim 29 (Withdrawn): The method of claim 1, wherein the mercerized and recovered cellulose pulp has a total crystallinity of less than about 60% by weight, based on 100% weight of total cellulose pulp.

Claim 30 (Withdrawn): The method of claim 1, wherein step (b) comprises converting the mercerized cellulose pulp into the cellulose ethers via a cellulose floc intermediate.

Claim 31 (Withdrawn): The method of claim 30, wherein step (b) comprises:

(i) treating the mercerized and recovered cellulose pulp to form a cellulose floc;

(ii) alkalating the cellulose floc to form an alkali cellulose; and

(iii) etherifying the alkali cellulose to form the cellulose ethers.

Claim 32 (Withdrawn): The method of claim 31, wherein step (b)(i) comprises grinding, dicing, or shredding the mercerized cellulose pulp to form the cellulose floc.

Claim 33 (Withdrawn): The method of claim 31, wherein step (b)(ii) comprises treating the cellulose floc with an alkalating agent.

Claim 34 (Withdrawn): The method of claim 33, wherein the alkalating agent is an alkali metal hydroxide.

Claim 35 (Withdrawn): The method of claim 31, wherein step (b)(iii) comprises reacting the alkali cellulose with an etherification agent to form the cellulose ethers.

Claim 36 (Withdrawn): The method of claim 35, wherein the etherification agent comprises sodium monochloroacetate.

Claim 37 (Withdrawn): The method of claim 11, wherein step (b) comprises:

(i) alkalating the cellulose floc to form an alkali cellulose; and

(ii) etherifying the alkali cellulose to form the cellulose ethers.

Claim 38 (Withdrawn): The method of claim 1, wherein the cellulose ether is a carboxymethyl cellulose.

Claim 39 (Withdrawn): The method of claim 1, wherein the cellulose ether is a methyl cellulose.

Claim 40 (Withdrawn): The method of claim 1, wherein the cellulose ether is a nonionic ether.

Claim 41 (Withdrawn): The method of claim 1, wherein the cellulose ether is an ionic ether.

Claim 42 (Previously Presented): A carboxymethyl cellulose ether prepared by:

(a) obtaining mercerized and recovered cellulose pulp; and

(b) converting the mercerized and recovered cellulose pulp into carboxymethyl cellulose,

wherein the mercerized cellulose pulp in step (a) was mercerized with a cellulose II mercerizing agent, the cellulose pulp is southern softwood kraft, and the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity of at most 12 cP.

Claim 43 (Previously Presented): A methyl cellulose ether prepared by:

(a) obtaining mercerized and recovered cellulose pulp; and

(b) converting the mercerized and recovered cellulose pulp into methyl cellulose,

wherein the mercerized cellulose pulp in step (a) was mercerized with a cellulose II mercerizing agent, the cellulose pulp is southern softwood kraft, and the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity of at most 12 cP.

Claim 44 (Previously Presented): A nonionic cellulose ether prepared by:

(a) obtaining mercerized and recovered cellulose pulp; and

(b) converting the mercerized and recovered cellulose pulp into a nonionic cellulose ether,

wherein the mercerized cellulose pulp in step (a) was mercerized with a cellulose II mercerizing agent, the cellulose pulp is southern softwood kraft, the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity of at most 12 cP, and when the cellulose ether prepared is hydroxyethyl cellulose, the mercerized and recovered cellulose pulp has at least one of the

following properties:

(i) a TAPPI 230 om-89 viscosity less than 10.4 cP or greater than 11.2 cP,

(ii) a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 2.3%,

(iii) a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 1.3%,

(iv) not been prehydrolyzed, or

(v) not been bleached with elemental chlorine.

Claim 45 (Previously Presented): An ionic cellulose ether prepared by:

(a) obtaining mercerized and recovered cellulose pulp; and

(b) converting the mercerized and recovered cellulose pulp into an ionic cellulose ether,

wherein the mercerized cellulose pulp in step (a) was mercerized with a cellulose II mercerizing agent, the cellulose pulp is southern softwood kraft, and the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity of at most 12 cP.

Claim 46 (Withdrawn): A method of preparing cellulose floc comprising the steps of:

(a) obtaining mercerized and recovered cellulose pulp, and

(b) treating the mercerized pulp to form the cellulose floc,

wherein the cellulose pulp is southern softwood kraft and the mercerized and recovered cellulose pulp is substantially free of cellulose III and has a TAPPI 230om-89 viscosity of at most 12 cP.

Claim 47 (Withdrawn): The method of claim 46, wherein the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity less than 10.4 cP or greater than 11.2 cP.

Claim 48 (Withdrawn): The method of claim 47, wherein the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity less than 9.25 cP.

Claim 49 (Withdrawn): The method of claim 48, wherein the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity less than 8 cP.

Claim 50 (Withdrawn): The method of claim 46, wherein the mercerized and recovered cellulose pulp has a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 2.3%.

Claim 51 (Withdrawn): The method of claim 50, wherein the mercerized and recovered cellulose pulp has a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 3.0%.

Claim 52 (Withdrawn): The method of claim 51, wherein the mercerized and recovered cellulose pulp has a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 5.0%.

Claim 53 (Withdrawn): The method of claim 46, wherein the mercerized and recovered cellulose pulp has a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 1.3%.

Claim 54 (Withdrawn): The method of claim 53, wherein the mercerized and recovered cellulose pulp has a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 2.0%.

Claim 55 (Withdrawn): The method of claim 54, wherein the mercerized and recovered cellulose pulp has a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 4.0%.

Claim 56 (Withdrawn): The method of claim 46, wherein the mercerized and recovered cellulose pulp has not been prehydrolyzed.

Claim 57 (Withdrawn): The method of claim 46, wherein the mercerized and recovered cellulose pulp has not been bleached with elemental chlorine.

Claim 58 (Withdrawn): The method of claim 46, wherein step (a) comprises:

(i) mercerizing cellulose pulp; and

(ii) washing, neutralizing, or neutralizing and washing the mercerized cellulose pulp.

Claim 59 (Withdrawn): The method of claim 46, wherein the mercerized and recovered cellulose pulp contains less than about 3.5% by weight of mercerizing agent, based upon 100% by weight of cellulose pulp and mercerizing agent

Claim 60 (Withdrawn): The method of claim 59, wherein the mercerized and recovered cellulose pulp contains less than about 0.3% by weight of mercerizing agent, based upon 100% total weight of cellulose pulp and mercerizing agent.

Claim 61 (Previously Presented): A cellulose floc prepared by:

(a) obtaining mercerized and recovered cellulose pulp, and

(b) treating the mercerized pulp to form a cellulose floc,

wherein the cellulose pulp is southern softwood kraft and the mercerized and recovered cellulose pulp is substantially free of cellulose III and has a TAPPI 230om-89 viscosity of at most 12 cP.

Claim 62 (Withdrawn): A method of preparing mercerized cellulose floc comprising the steps of:

(a) mercerizing the cellulose floc; and

(b) recovering the mercerized cellulose floc,

wherein the mercerized and recovered cellulose floc is substantially free of cellulose III, the cellulose floc is derived from southern softwood kraft, and the mercerized and recovered cellulose floc has a TAPPI 230 om-89 viscosity of at most 12 cP.

Claim 63 (Withdrawn): The method of claim 62, wherein the mercerized and recovered cellulose floc has a TAPPI 230 om-89 viscosity less than 10.4 cP or greater than 11.2 cP.

Claim 64 (Withdrawn): The method of claim 63, wherein the mercerized and recovered cellulose floc has a TAPPI 230 om-89 viscosity less than 9.25 cP.

Claim 65 (Withdrawn): The method of claim 64, wherein the mercerized and recovered cellulose floc has a TAPPI 230 om-89 viscosity less than 8 cP.

Claim 66 (Withdrawn): The method of claim 62, wherein the mercerized and recovered cellulose floc has a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 2.3%.

Claim 67 (Withdrawn): The method of claim 66, wherein the mercerized and recovered cellulose floc has a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 3.0%.

Claim 68 (Withdrawn): The method of claim 67, wherein the mercerized and recovered cellulose floc has a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 5.0%.

Claim 69 (Withdrawn): The method of claim 62, wherein the mercerized and recovered cellulose floc has a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 1.3%.

Claim 70 (Withdrawn): The method of claim 69, wherein the mercerized and recovered cellulose floc has a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 2.0%.

Claim 71 (Withdrawn): The method of claim 70, wherein the mercerized and recovered cellulose floc has a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 4.0%.

Claim 72 (Withdrawn): The method of claim 62, wherein the mercerized and recovered cellulose floc has not been prehydrolyzed.

Claim 73 (Withdrawn): The method of claim 62, wherein the mercerized and recovered cellulose floc has not been bleached with elemental chlorine.

Claim 74 (Previously Presented): A cellulose floc prepared by:

(a) mercerizing a cellulose floc; and

(b) recovering the mercerized cellulose floc,

wherein the mercerized and recovered cellulose floc is substantially free of cellulose III, the cellulose floc is derived from southern softwood kraft, and the mercerized and recovered cellulose floc has a TAPPI 230 om-89 viscosity of at most 12 cP.

Claim 75 (Withdrawn): A method of preparing cellulose ethers comprising the steps of:

(a) selecting a desired viscosity for the cellulose ethers;

(b) obtaining mercerized and recovered cellulose pulp having the appropriate viscosity for yielding cellulose ethers having the selected viscosity; and

(c) converting the mercerized and recovered cellulose pulp to the cellulose ethers,

wherein the mercerized and recovered cellulose pulp is substantially free of cellulose III, the cellulose pulp is southern softwood kraft, and the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity of at most 12 cP.

Claim 76 (Withdrawn): The method of claim 75, wherein when the cellulose ether prepared is hydroxyethyl cellulose, the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity less than 10.4 cP or greater than 11.2 cP.

Claim 77 (Withdrawn): The method of claim 75, wherein the mercerized and recovered cellulose pulp has a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 2.3%.

Claim 78 (Withdrawn): The method of claim 77, wherein the mercerized and recovered cellulose pulp has a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 3.0%.

Claim 79 (Withdrawn): The method of claim 78, wherein the mercerized and recovered cellulose pulp has a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 3.0%.

Claim 80 (Withdrawn): The method of claim 75, wherein the mercerized and recovered cellulose pulp has a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 1.3%.

Claim 81 (Withdrawn): The method of claim 80, wherein the mercerized and recovered cellulose pulp has a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 2.0%.

Claim 82 (Withdrawn): The method of claim 81, wherein the mercerized and recovered cellulose pulp has a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 4.0%.

Claim 83 (Withdrawn): The method of claim 75, wherein the mercerized and recovered cellulose pulp has not been prehydrolyzed.

Claim 84 (Withdrawn): The method of claim 75, wherein the mercerized and recovered cellulose pulp has not been bleached with elemental chlorine.

Claim 85 (Previously Presented): A cellulose ether derived from mercerized and recovered cellulose pulp, the mercerized and recovered cellulose pulp having at least about 20%

by weight of cellulose II, based upon 100% total weight of the crystalline portion of the mercerized cellulose pulp.

Claim 86 (Previously Presented): The cellulose ether of claim 85, wherein the mercerized and recovered cellulose pulp comprises at least about 35% by weight of cellulose II, based upon 100% total weight of the crystalline portion of the mercerized cellulose pulp.

Claim 87 (Previously Presented): The cellulose ether of claim 86, wherein the mercerized and recovered cellulose pulp comprises at least about 60% by weight of cellulose II, based upon 100% total weight of the crystalline portion of the mercerized cellulose pulp.

Claim 88 (Previously Presented): A cellulose ether derived from mercerized and recovered cellulose pulp, the mercerized and recovered cellulose pulp having an Rx value of greater than 0.57.

Claim 89 (Previously Presented): The cellulose ether of claim 88, wherein the mercerized and recovered cellulose pulp has an Rx value of greater than 0.60.

Claim 90 (Previously Presented): The cellulose ether of claim 89, wherein the mercerized and recovered cellulose pulp has an Rx value of greater than 0.64.

Claim 91 (Previously Presented): A cellulose ether derived from mercerized and recovered cellulose pulp, the mercerized and recovered cellulose pulp having a total crystallinity of less than about 60% by weight, based on 100% weight of total cellulose pulp.

Claim 92 (Previously Presented): The cellulose ether of claim 91, wherein the mercerized and recovered cellulose pulp has a total crystallinity of less than about 45% by weight, based on 100% weight of total cellulose pulp.

Claim 93 (Previously Presented): A cellulose ether derived from mercerized and recovered cellulose pulp, the mercerized and recovered cellulose pulp comprising less than 20% by weight of moisture content, based upon 100% total weight of mercerized and recovered cellulose pulp.

Claim 94 (Previously Presented): The cellulose ether of claim 85 or of claim 88, wherein the cellulose ether is an ionic cellulose ether or a nonionic cellulose ether.

Claim 95 (Previously Presented): The cellulose ether of claim 94, wherein the cellulose ether is a carboxymethyl cellulose, a hydroxyethyl cellulose, a hydroxypropyl cellulose, a methyl hydroxyethyl cellulose, an ethyl hydroxyethyl cellulose, a methyl cellulose, or a methyl hydroxy propyl cellulose.

Claim 96 (Previously Presented): The cellulose ether of claim 95, wherein the cellulose ether is a carboxymethyl cellulose.

Claim 97 (Previously Presented): The cellulose ether of claim 95, wherein the cellulose ether is a hydroxyethyl cellulose.

Claim 98 (New). A cotton linters pulp derived cellulose floc having an average floc length of from 0.25 to 0.50 mm and a floc tap density according to the formula:

$$\text{Floc Tap Density}_{\text{CLP Floc}} = m * (AFL)^{-0.8043}$$

wherein m ranges from 0.0755 to 0.0835 and AFL is the number average floc length of the cellulose floc.

Claim 99 (New): A southern softwood kraft derived cellulose floc having an average floc length of from 0.25 to 0.50 mm and a floc tap density according to the formula:

$$\text{Floc Tap Density}_{\text{SSK Floc}} = m * (AFL)^{-0.9676}$$

wherein m ranges from 0.0841 to 0.0925 and AFL is the number average floc length of the cellulose floc.

Claim 100 (New): A northern softwood sulfite derived cellulose floc having an average floc length of from 0.25 to 0.50 mm and a floc tap density according to the formula:

$$\text{Floc Tap Density}_{\text{NSS Floc}} = m * (AFL)^{-0.7336}$$

wherein m ranges from 0.0689 to 0.0758 and AFL is the number average floc length of the cellulose floc.